
Improving the Utah Transportation Data Model

Posted by Bert Granberg - 2009/01/06 08:08

Out of the the Utah Geospatial Infrastructure (UGI) strategic planning process came a clear mandate to develop and refine Utah GIS data models.

The Utah Transportation Data Model (UTDM) has been around for years now. Although it currently contains 48 attributes, there are several modifications that have been requested.

Here is my list of UTDM enhancement recommendations (below). Please feel free to use the forum to add to my list.

Attribute Additions:

- Number of Lanes
- Min and max clearance heights
- Weight restrictions
- Median Type, physical u-turn restrictions
- UDOT Milepost From/To for state/federal (class A) routes
- Better compatibility with e911/CAD systems
- Scenic byway/backway designation
- Local (city/county) cartographic code
- Seasonal or weather closure
- Replication global identifier and/or persistent unique feature identifier
- 4WD recommendations
- Vertical level attribute for cartography
- Detectors & dynamic signposts

Geometric Guidelines:

- Divided highways (when to represent each direction separately?)
- Single Point Urban (freeway) Interchanges (SPUIs) (how to represent?)
- Driveways/private roads/service entries (when is it a street)
- Agreement points at county, state boundaries

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Re:Improving the Utah Transportation Data Model

Posted by Kevin Bell - 2009/01/06 09:46

Bike Lanes?

Slope (or max slope)?

Annual Average Daily Traffic?

Center lane type: turn lane or not? (an attribute of Median Type?)

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Re:Improving the Utah Transportation Data Model

Posted by Steve Gourley - 2009/01/06 11:23

this may seem simple or already an attribute but a way to determine one way streets and their flow direction. And what about speed limit? It'd also be pretty neat to track the number of car accidents on a certain road as well as wildlife accidents.

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Re:Improving the Utah Transportation Data Model

Posted by Bert Granberg - 2009/01/06 11:56

Speed limit and One Way are currently handled by the data model although they are not currently complete or QC'ed at a statewide level. These attributes are needed for any hope of doing decent network analysis.

Integrating UDOT's milepost systems will allow for accident data already tracked by UDOT (cars v. cars; cars v. themselves; and cars v. wildlife) to be analyzed geographically.

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Re:Improving the Utah Transportation Data Model

Posted by James Wingate - 2009/01/06 15:34

I don't have any additional fields to add, but I do recommend that the metadata include an explanation of how to populate the fields. Most are self-explanatory but a few are not. Consistency in how alias names are used is a prime example.

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Re:Improving the Utah Transportation Data Model

Posted by Dave Francisco - 2009/01/09 13:47

For our shared interest ...

Meeting Grand Transportation Challenges with Geographic Information Science

Harvey J. Miller

University of Utah

follow the link for full report ... http://www.geog.utah.edu/~hmiller/papers/arcnews_article_v4.pdf

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Re:Improving the Utah Transportation Data Model

Posted by Jessica Kirby - 2009/02/23 14:37

Would it be too much trouble to add the width of the road (like a right and left of center line) if known?

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Re:Improving the Utah Transportation Data Model

Posted by Bert Granberg - 2009/03/02 09:45

Will keep that in mind...my only question is who would have and maintain that detail and not do it with polygons?

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Re:Improving the Utah Transportation Data Model

Posted by Jessica Kirby - 2009/03/02 09:58

That's a good question. I posted my comment with hopes of getting others reactions/ to spark a conversation about it. I am not even sure if it would be worth pursuing or if it is a reasonable request?...we'll have to see if anyone has anything to say about it.

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Re:Improving the Utah Transportation Data Model

Posted by James Wingate - 2009/03/02 10:07

I support having a model with minimal attributes so that is as easy as possible for the data creators to maintain. Thus, I recommend determining which are the core attributes and which are the extras. To me, width is an extra.

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Re:Improving the Utah Transportation Data Model

Posted by Jessica Kirby - 2009/03/02 10:39

Thanks for starting the discussing James...

I do understand the need to keep it simple. But entertain my idea for just a moment...coming from a surface land management point of view, I see value in the "extras" if they are not too cumbersome to maintain. If an extra attribute, such as width, was available the information could be used for verifying and maintaining the underlying ownership layer. In a way, allowing the two layers could co-exist in harmony:) It makes sense to me to because the two layers should be coincident. One being the base for the other.

I see this improvement as our opportunity to look a little outside our data model boxes and to collect information about transportation that we may not have thought valuable in the past. Who knows, maybe the transportation users would also find the information useful.

Of course, this all depends on the availability of the information and the willingness from transportation data model team to populate it. Not being a transportation person myself, I don't even know if this is a reasonable request...although in talking with Kevin Sato, Cottonwood Heights City, they do maintain such a field and find it useful.

I may be mixing too much fruit in one basket here (i.e trying to update surface ownership from the transportation data layer)but it's my way of killing two birds with one stone.

That's my 2 cents on the topic.

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Re:Improving the Utah Transportation Data Model

Posted by James Wingate - 2009/03/02 11:06

Interesting... Perhaps road width could help with land ownership and parcels if those layers are all coincident. One obstacle may be if width is populated in terms of how wide the street is actually built vs. how wide the road right of way is. As I'm sure you know, roads are often not initially built to the full width of their right of way, but may be widened later as traffic needs dictate. This may present a problem with having the boundaries be coincident. Just a thought.

Back to my first concern--I don't have objections to any field being included in the model if the creators already have the data. But I think asking them to populate fields that they don't normally use creates additional work for them, which may result in them being resistant to cooperating with the agreed-upon data standards (once they're agreed-upon).

Thus, I think we need consensus among the data creators and data users about which fields are needed the most to maximize support for the standard. Thanks.

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Re:Improving the Utah Transportation Data Model

Posted by Kevin Bell - 2009/03/02 11:13

Hi gang! We maintain width attributes, but the data reflects pavement widths, so if there's an island then that's not accounted for.

I say James is right on the minimal required data, and Jess is correct that the more data the better.

One request that we've had that involves this width attribute is from the movie producers. They'd like to know if they can get their trucks around town, so they're also interested in overpass height restrictions, bridge weight max, etc.

Everybody's 2 cents is adding up to quite a bit here!

Maybe Bert could start a list here somewhere that would document the requests... so far here's mine:

- width
- center lane type
- bike facility type
- overpass height restriction
- bridge weight restriction

truck route hazmat restriction
can I haul plutonium on this street?
ATV allowed (some small towns allow ATVs)
U Turns allowed?
Accident rate (N per 100 million veh miles traveled)

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Re:Improving the Utah Transportation Data Model

Posted by Jessica Kirby - 2009/03/02 11:37

I am aware of the differences of right of way and actual construction surface, good point! This is where the idea could be tricky. There is also the issue of perpetual easement across land vs actual physical ownership. And then there's the point that Kevin just brought up; the method in which the widths are measured and how that in itself will vary.

The collaborator issue should not be taken lightly. Collaborator involvement is a real concern (i.e. we must have it)and I understand that if we make the model to involved then there is the potential to loose participation. If this attribute, and others as Kevin mentioned, are adopted into the model there is always the possibility that could be seen as "Bonus" with the intent to populate when information is available and with hopes of filling in the holes when funding and time allows. Or will we, by allowing nonpopulated attributes, be introducing clutter to the data model?

My 2 cents may add up to a few dollars by the time this is done :)

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